

SBS-2M™

Professional Mode-S/ADS-B Receiver with Multilateration

The **SBS-2M™** is based around a 19" rack-mounted professional 1090 MHz Mode-A/C/S and ADS-B receiver with remote antenna modules that capture transmissions from transponder equipped aircraft and derives positional data based on Time Difference of Arrival (TDOA). Ideal for non-radar airfields and large inhospitable areas or as a backup system for SSR, the **SBS-2M™** provides cost-effective situational awareness.

Combining state-of-the art electronics and new technological advances has enabled Kinetic Avionic Products Limited to produce the versatile **SBS-2M™**.

Advanced Functionality

The **SBS-2M™** comprises of the professional **SBS-2™** chassis system in a network configuration, with the option of remote external antenna modules connected to the host by radio, microwave or fibre optic links. The **SBS-2M™** can be configured for Terminal Area or Wide Area Multilateration Surveillance.

Each receiver processes Mode A/C and Mode-S SSR replies (on 1090 MHz), and Mode-S squitter transmissions, including extended squitter messages (ADS-B). Each receiver module decodes and timestamps the transponder reply signals and squitter messages it receives, before transmitting the data to the **SBS-2M™** Target Processor (TP). The advanced target processing software then compares the reports from the various receiver modules to derive target positions based on Time Difference of Arrival (TDOA) of the signal at the different antennas.

Additional decoded data available from Mode S / ADS-B transmissions includes:

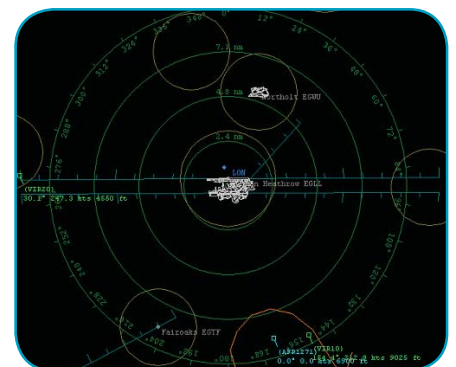
- Precise UTC date and time signal was received (using GPS synchronisation)
- Signal strength
- 24-bit aircraft address
- Mode-S download format (DF)
- Position report derived from aircraft's on board navigation system
- Altitude reported (Flight level)
- Altitude AMSL (calculated using pressure sensor)
- Selected Altitude/Heading
- Horizontal and Vertical velocity
- Date/Time of last position update
- Navigational Uncertainty Category (NUC)
- Aircraft ID
- Aircraft Category
- Mode 3/A 4096 code (Squawk)
- Squitter status
- Transponder capability
- Surveillance status (SPI, alert)
- Single antenna flag (SAF)

Mode A/C signals provide timestamp and signal strength plus Mode A 4096 code or Mode C altitude data, together with the multilaterated position information.

Hardware Interfaces

The **SBS-2M™** TP is housed in a 19" card frame unit with auto-ranging power supply, touch screen, keyboard, mouse and front panel annunciators. The unit can be connected to a host system via Ethernet and provides a range of possible outputs including raw Mode A/C, Mode S and ADS-B data, processed aircraft data and a CAT 20 and 21 compliant data stream. There are number of user-selectable options at order time and the **SBS-2M™** is fully retro-gradable. The **SBS-2M™** TP is highly versatile in deployment and configuration and allows full access to real-time Mode-A/C/S and ADS-B data for processing, or logging of the data to hard disk for later retrieval.

SBS-2M™ Customisation is available.



Innovative products for the avionics community

To discover more:

www.kinetic-avionics.co.uk

SBS2M/Spec/2.06

SBS-2M™ Professional Mode-S/ADS-B Receiver with Multilateration

Main Features

- Receives, processes and outputs Mode-A/C/S and ADS-B data in real time
- Target position derived using multilateration
- High aircraft processing capacity
- ASTERIX CAT 20/21 compliant data stream
- Ethernet connectivity to host system
- Target database with SQL interface
- Data logging and retrieval
- Signal strength measurement
- Provides positional information for Mode A/C and S transponder-equipped aircraft
- Customised options available at ordering time, including 1030 MHz receiver and RF signal logging
- Unambiguous aircraft identification using Mode-S and ADS-B
- Easy to install and low power supply consumption
- Fully unattended operation of the system
- An invaluable tool for research, development, analysis and bespoke applications
- Low costs for operation and maintenance

Uses and applications

Area of use

- Airports
- Air Traffic Control
- Military/Government
- Airlines
- Educational
- Air Traffic Management
- Specialist/Bespoke Users

Example uses

- Cost-effective ATC air surveillance system
- Ground movement monitoring
- Vehicle tracking
- Airport Operations Management
- Economical surveillance over large inhospitable areas
- Backup system for SSR
- Passive, rapidly deployable air traffic surveillance
- Identification of primary radar targets
- Use of raw data streams in customised application environments
- Fleet Identification and tracking
- Airline Operations analysis
- Support of ATC education and training
- Monitoring of transponder equipage rates and capabilities
- Detection of transponder malfunctions and anomalies
- Use of raw data streams in other software and hardware applications



Specifications

- Range 250 nm (depending on antenna type and location)
- Accuracy (X,Y) Down to 5 metres – configuration dependent
- Output Data Raw or decoded Mode-A/C/S and ADS-B Data • ASTERIX CAT 20/21 • Other output formats available
- Power Supply AC Input 300W
- Mounting 5U Height 19" RACK-mount chassis
- Colour White
- Construction Heavy-duty steel
- Dimensions 431mm wide • 479mm deep • 220mm high
- LCD Size 10.4" TFT
- LCD Brightness 250 cd/m²
- LCD View Angle H-V 80 (H) x 40 (V)
- Operation Temperature 0 - 50°C



E&OE. Specifications may change from time to time

About Kinetic Avionic Products Limited

Kinetic Avionic Products Limited specialises in the design, development and deployment of innovative products for the avionics and aviation community. Umbrellaed as part of an ISO 9001-2000 company group with a global customer base, our engineers have designed, developed and deployed state of the art avionics within the UK and overseas territories.

The use of state-of-the-art technology allows KAPL to produce compact, advanced and highly reliable, industry compliant solutions. Embracing the latest technological advances is a key part of our ethos. Our specialised team of engineers, programmers and technicians work together to innovate pioneering and cost effective products.

KAPL are designers and manufacturers of the **SBS-1™** Real-time Virtual Radar, **SBS-2™** Professional Mode-S/ADS-B Receiving Station, **SBS-2M™** Mode-S/ADS-B Receiving Station with Multilateration and the Lightweight Aviation SSR Transponder (**L.A.S.T./L.P.S.T.**)

Kinetic House • 44 Hatton Garden • London • EC1N 8ER T: +44 (0)20 7404 1941 F: +44 (0)20 7404 1916

W: www.kinetic-avionics.co.uk • E: info@kinetic-avionics.co.uk

Innovative products for the avionics community

